

### **REMARKS/ARGUMENTS**

Claims 1-14 were presented for examination, claim 9 being previously canceled, leaving claims 1-8 and 10-14 pending in this application. In an Official Final Office Action dated August 4, 2009 claims 1-8 and 10-13 were rejected. Claim 14 was objected to as being dependent on a rejected claim but would be found allowable if rewritten in independent form including all limitations of the base claim and any intervening claims. The Applicant thanks the Examiner for his consideration and addresses the Examiner's comments concerning the claims pending in this application below.

Applicant herein amends claims 1, 4, 5, 8, 10, 11 and 14 and respectfully traverses the Examiner's prior rejections. No claims are currently cancelled and no new claims are added. These changes are believed not to introduce new matter, and their entry is respectfully requested. Moreover, the changes incorporate limitations originally found in claim 14, therefore the Applicant contends a new search is not warranted. The claims have been amended to expedite the prosecution and issuance of the application. In making this amendment, the Applicant has not and is not narrowing the scope of the protection to which the Applicant considers the claimed invention to be entitled, and does not concede, directly or by implication, that the subject matter of such claims was in fact disclosed or taught by the cited prior art. Rather, the Applicant reserves the right to pursue such protection at a later point in time and merely seeks to pursue protection for the subject matter presented in this submission.

Based on the above amendment and the following remarks, Applicant respectfully requests that the Examiner reconsider all outstanding rejections and withdraw them.

### ***Drawing Objection***

In the Final Office Action, the Examiner maintains the objection to the drawings, stating again that unlabeled rectangular box(es) should be provided with descriptive text labels. The Applicant appreciates the Examiner's position but the Final Office Action again fails to provide sufficient detail regarding which figures have been objected to as allegedly failing to have descriptive text labels. A careful review of the rectangular boxes of each figure shows that each box is either labeled with a numeral associated with descriptive text in the specification or descriptive text/symbols. The Applicant contends that one skilled in the art, in view of the descriptive text in the specification, would find the labels and descriptive text/symbols adequate to fully understand, make and use the invention. The Applicant is willing to modify the current labeling and descriptive text present in the drawings to assist the Examiner and to expedite allowance of the case. However, the Applicant respectfully requests specific detail as to what rectangular boxes in what figures are giving rise to the objection.

Reconsideration and a specific response is respectfully requested.

### ***Rejections Under 35 U.S.C. § 103***

Claims 1-8 and 10-13 remain rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over U.S. Patent Publication No. 2004/0028121 issued to *Fitton* ("Fitton") in view of U.S. Patent No. 7,313,114 issued to *Karjalainen* ("Karjalainen"). Applicant respectfully traverses this rejection for at least the following reasons.

Independent claims 1 (and claims, 4 and 11 in varying language) is herein amended to state (among other things), "said means for respectively evaluating the contribution of interferences including a plurality of correlators, wherein each correlator receives scrambling codes of other links that contribute to the interference

...."Support for this amendment can be found generally in the specification and specifically in the paragraph beginning on line 6 of page 4. The Applicant contends that neither Fitton nor Karjalainen teach or suggests the use of correlators that receive scrambling codes of other links that contribute to the interference of data caused by the channel. By this fact alone, the Applicant deems that claims 1, 4 and 11 are patentable over Fitton and Karjalainen.

The Applicant respectfully traverses the Examiner's conclusion that the rearrangement of the interface cancellation unit would not modify the operation of Fitton. In the Final Office section of August 4, 2009 the Examiner, in response to arguments, states, "although Fitton does not specifically disclose the interference cancellation unit's 910 are included in the rake fingers, it would not be as to one having ordinary skill in the art at the time of the invention was made to modify the interference cancellation used to be integrated in the rake fingers." Shortly thereafter, the Examiner states "Japikse does support the office's position of obviousness because rearrangement of the interference cancellation unit would not modify the operation of Filton since the interference estimate 908 are provided separately to an interference cancellation unit as disclosed in paragraph 125 and it shows the interference cancellation unit 632 can be included in a rake finger in other embodiments of Filton (see 6 of Fitton)" (emphasis in original).

Beyond the inconsistency of the Examiner's arguments, the Applicant respectfully traverses that the rearrangement of the interference cancellation unit does not modify the operation of the Fitton. Fitton and Karjalainen appear to disclose a conventional rake system in which subtraction of the interference is done after unscrambling. Fitton clearly outlines such conventional techniques on page 6 beginning in paragraph [0074] stating "Common channels with a known spreading code modulated by data, such as the PCCPC 11. To cancel the interference generated by these channels, the channel must be de-spread and demodulated to

determine the transmitted data and then respread to form an estimate of the transmitted signal **before** the interference can be suppressed from the desired signal" (emphasis added). Further, in paragraph [0075] Fitton states, "Desired dedicated channels with a known spreading code. The self-interference caused by IPI within a single code can be suppressed, and in some cases, where the code of more than one dedicated channel are known *a priori*, other interference may also be suppressed. ... Here, again, the interfering channel is de-spread, demodulated, and respread **prior** to cancellation of the interference. This technique can also be applied when the desired signal is transmitted in multiple streams, for example with space-time block coded transmit delivery (STTD)" (emphasis added).

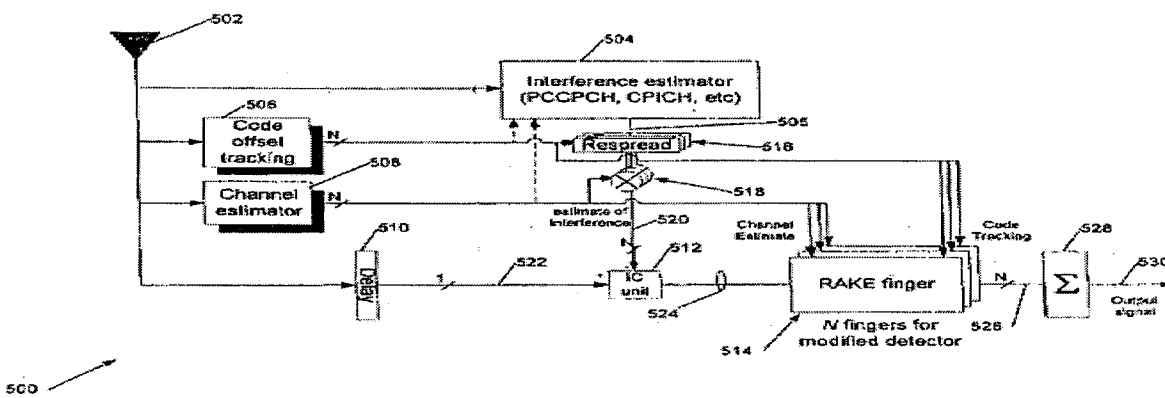


Figure 5

Clearly, Fitton teaches subtraction of the interference after unscrambling. This fact is particularly illustrated in a number of embodiments described in Fitton. For instance, Figure 5 shows that the estimate of interference is subtracted by integrated circuit unit 512, which is performed after respreading. This gives evidence to the fact that interference cancellation is carried out after the descrambling process.

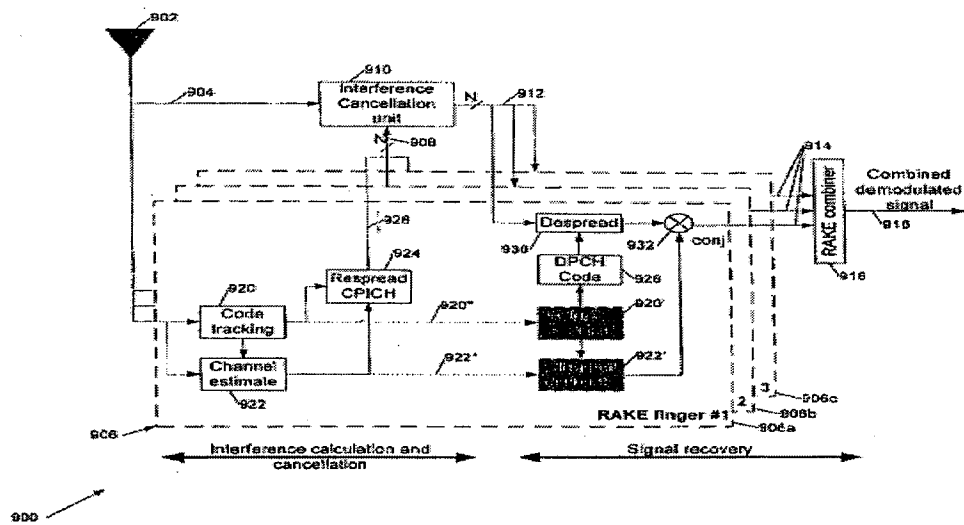


Figure 9

The same conclusion can be reached regarding the modified rake fingers 906 shown in Figure 9. Again Figure 9 shows that cancellation is performed after the respreading 924.

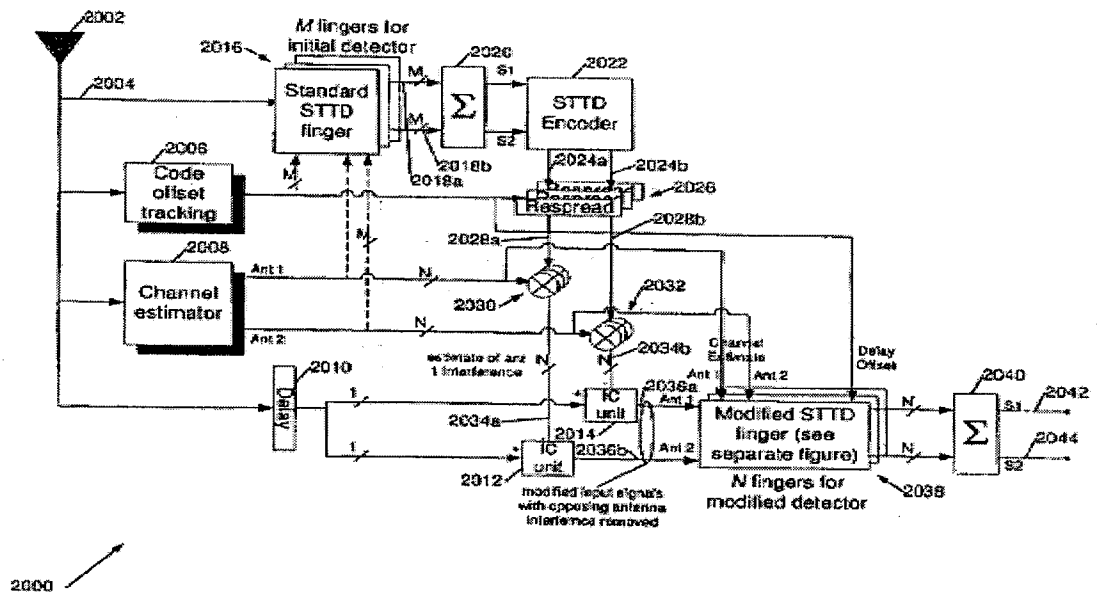


Figure 20a

A similar conclusion can be reached with the architecture of Figure 20. Figure 20 shows a so-called standard STTD finger which is described in paragraph 251. There, Fitton states, "To received signal 2004 is also provided to a plurality, M, of conventional STTD rake fingers 2016 which provide a corresponding plurality of pairs of outputs 2018 to conventional STTD rake combiner 2020 which provides output estimates for signals S1 and S2 to an STTD encoder 2022" (emphasis added).

Here, the rake fingers 2016 are clearly presented as being conventional. It will be understood by one skilled in the relevant art that such rake fingers incorporate unscrambling and despreading as in any conventional finger. This is confirmed by the fact that the signals S1 and S2 provided to the STTD encoder 2020 are respread by the respreading block 2026 as shown below.

From the figures presented above, it can clearly be seen that the interference cancellation in Fitton performed by subcontractors 2012 and 2014 occurs after the scrambling process, as in any conventional prior art system. In contrast to Fitton, the present invention is based on the fact that the unscrambling process is sensitive to the existence of the interference between the different paths of the signal. To improve accuracy in the receiver, the interference cancellation is arranged before the unscrambling/despreading process.

As to the respective figure for the specification, "The output of these estimators are added together by the adding device 60. The estimation of the interference are subtracted from the data signal provided by the head 31 thanks to subtractor 62. The data signal are delayed at the delay device 61 which delays the data by an amount which has a relation to the delay of the path concerned. After this operation, an unscrambling operation is performed by the multiplier 64, which provides data from the scrambling code coming from the generator 39." Figure 4

below shows that the subtractor 62 achieves interference cancellation before the unscrambling process is carried out by multiplier 64.

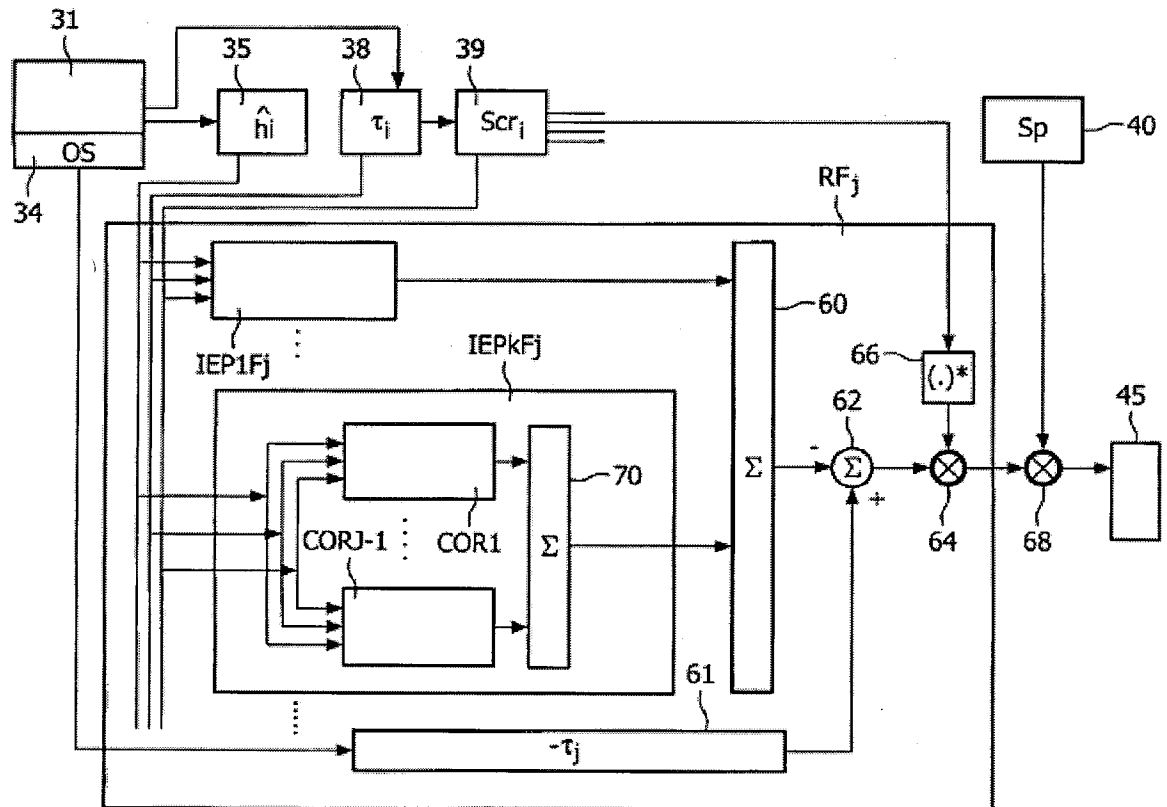


FIG. 4

The Examiner argues in the rejection of August 4, 2009 that Karjalainen discloses a means for unscrambling data, referencing Figure 4 and the text found at lines 1 through 20 of column 10. Figure 4 of Karjalainen, however, clearly shows the deinterleaver 426 prior to the descrambler 428. Clearly, Karjalainen also employs the conventional technology of the subtraction of the interference being done after unscrambling.

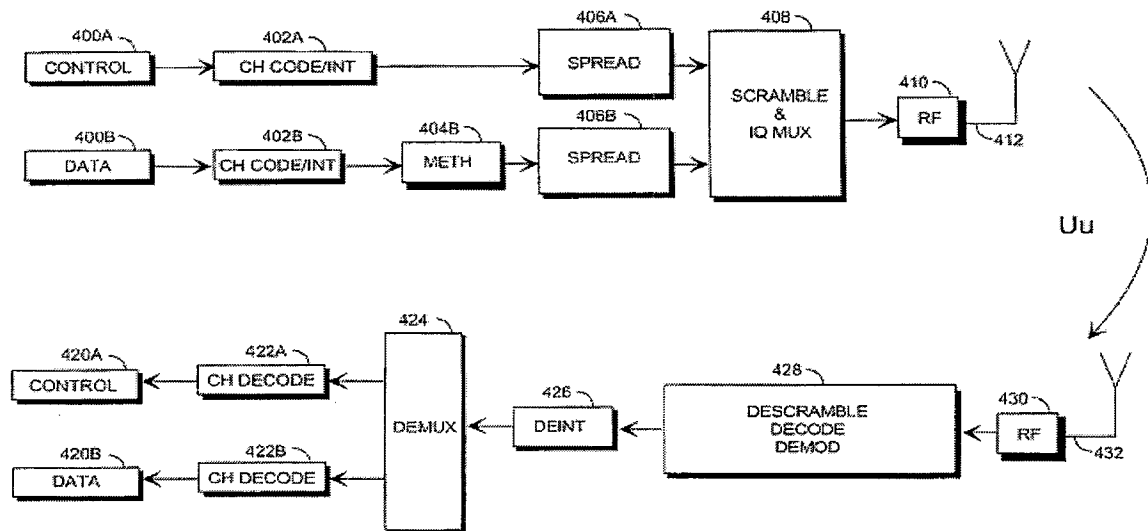
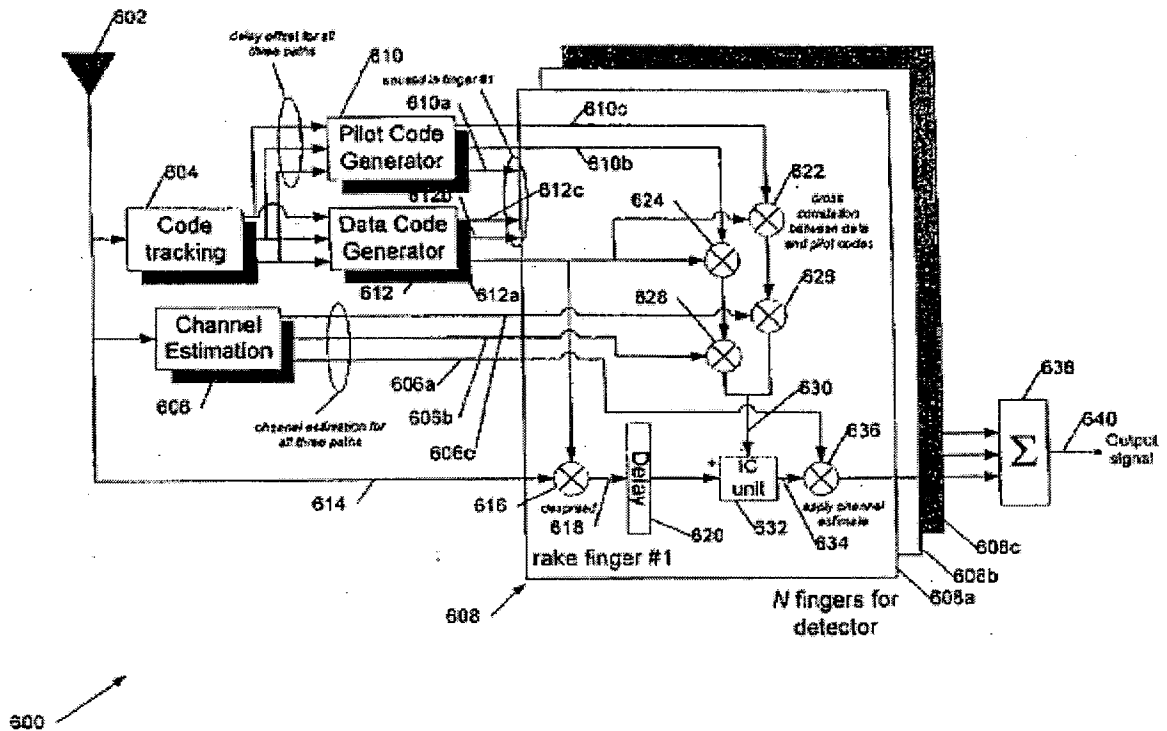


Fig 4

The Examiner also turns to Figure 6 of Fitton (shown below) to present the argument that the interference cancellation unit 632 can be included in a rake finger. But the Examiner's argument fails to consider that even in Figure 6, the interference cancellation 632 occurs after the unscrambling process carried out by the correlators 622, 624 and multipliers 626, 628 (see para [0103] of Fitton).





As one skilled in the art would recognize, conventional interference cancellation is performed after descrambling for practical considerations, so as to allow operations to be conducted at a reduced frequency. Indeed, arranging the interference cancellation after the descrambling/despreading process allows operation at a reduced frequency of 15 kHz, while the same operation performed before the descrambling/despreading operation would require organizing subtractions at a frequency of as much as 3.8 MHz. For this reason conventional systems are based on the use of a subtractor placed after the unscrambling process. The arrangement of the subtractor before an unscrambling cannot be considered commonplace or routine, or as a simple rearrangement of the prior art.

In addition, it should be noticed that there are no systems other than the present invention which uses a subtractor operating at a frequency 3.8 MHz.

Indeed, arranging interference cancellation prior to the unscrambling/despreading process significantly increases the performance of the receiver at the cost of additional digital processing resources. The need for additional processing resources teaches away from a modification of the prior art or rearrangement of the prior art, to form the present invention. The Applicant's discovery and understanding that the descrambling process is sensitive to the effects of the interference occurring between the different paths of the signal, and that such interference jeopardizes the accuracy of the receiver, is significant, and should not be discounted by the Examiner. Clearly, the rearrangement of the components of Fitton and Karjalainen modify the operation of the prior art. The rearrangement of the prior art requires additional processor resources. The arguments with respect to *Japikse* made by the Examiner are in error and improper.

In view of all of the above, the claims are now believed to be allowable and the case in condition for allowance, which action is respectfully requested. Should the Examiner be of the opinion that a telephone conference would expedite the prosecution of this case, the Examiner is requested to contact Applicant's attorney at the telephone number listed below.

Please charge deposit account 50-1123 for the Request for Continued Examination fee of \$810 which is believed due for this submittal. Any additional fees associated with this submittal may be charged to Deposit Account No. 50-1123.

Respectfully submitted,

Nov 3, 2009

  
Michael C. Martensen, Reg No. 46901  
Hogan & Hartson LLP  
One Tabor Center  
1200 17th Street, Suite 1500  
Denver, Colorado 80202  
(719) 448-5910 Tel  
(303) 899-7333 Fax